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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Martin Howlid

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EXAMINER

HUGHES, SCOTT A

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/552,795	Applicant(s) HOWLID ET AL.	
	Examiner SCOTT A. HUGHES	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-81 is/are pending in the application.
- 4a) Of the above claim(s) 3,4,10,11,17 and 31-81 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-9,12-16 and 18-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/2/06, 2/8/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I and species A, a, i, and AA in the reply filed on 9/11/2008 is acknowledged. The traversal is on the ground(s) that Group I and Group II have a common technical feature. This is not found persuasive because applicant's claims, including a plurality of apparatus and a plurality of methods, do not fall within an allowable combinations of categories of invention. Further, there is no special technical feature defining a contribution over the prior art found shared by Groups I and II.

The requirement is still deemed proper and is therefore made FINAL.

Based on applicant's election, claims 1-2, 5-9, 12-16, and 18-30 are examined.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 9, 22, and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites the limitation "the desired position" in the first line of the claim. There is insufficient antecedent basis for this limitation in the claim. There is no previous mention of a desired position in the claims from which claim 9 depends, and therefore there is a lack of antecedent basis for the term "the desired position" in claim

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9, as this term implies that a desired position is already present. For the purposes of this action, claim 9 will be interpreted as though a desired position is required.

Claim 22 recites the limitation "the upper and lower wings" in the first line of the claim. There is insufficient antecedent basis for this limitation in the claim. There is no previous mention of upper and lower wings in the claims from which claim 22 depends, and therefore there is a lack of antecedent basis for the term "the upper and lower wings" in claim 22. Although the previous claims contain limitations directed to one or more wings, they do not state that this wings are upper and lower wings. For the purposes of this action, claim 22 will be interpreted as though the previous claims from which claim 22 depends require upper and lower wings.

The term ""typical of" in claim 28 is a relative term which renders the claim indefinite. The term "typical of" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Therefore, the frequency range in which the devices operate is unclear and indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 5-6, 8-9, 12-16, 18-22, and 26-26 are rejected under 35 U.S.C. 102(b) as being anticipated by George (4719987).

With regard to claim 1, George discloses a seismic survey system for use in water (abstract; Column 1, Lines 10-15) (Fig. 5). George discloses a source array 50 (Fig. 1) (Column 3, Lines 30-40). George discloses an independently steerable deflector device 22,23 coupled to the source array 50 (Figs. 1-5), wherein the deflector device controls a position of the source array (Column 3, Line 3 to Column 4, Line 51). George discloses a positioning system 31 to determine the location of the source array (Column 3, Lines 10-13).

With regard to claim 2, George discloses that the deflector device controls the position array that trails the steerable deflector (Fig. 1).

With regard to claim 5, George discloses that the positioning unit 31 is mounted on the source array 50 (Fig. 1).

With regard to claim 6, George discloses that the positioning system is a laser system (Column 3, Lines 10-13).

With regard to claim 8, George discloses a controller for controlling the position of the deflector device (Column 3, Line 50 to Column 4, Line 10; Column 4, Lines 36-51).

With regard to claim 9, George discloses that the desired position is the same position as in a previous survey (Column 4, Lines 25-51). George discloses moving the source arrays with respect to the vessel in desired directions based on the vessel path.

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With regard to claim 12, George discloses a positioning unit 31 attached to the source array, wherein the positioning unit provides a signal to inform the controller of a current position of the source array (Column 3, Lines 10-13; Column 3, Line 50 to Column 4, Line 10; Column 4, Lines 36-43).

With regard to claim 13, George discloses that a source is triggered when the array is at a desired position (Column 3, Line 30 to Column 4, Line 10; Column 4, Lines 36-43).

With regard claim 14, George discloses that the controller is positioned on the towing vessel (Column 3, Line 50 to Column 4, Line 10; Column 4, Lines 36-43).

With regard to claim 15, George discloses that the deflector device comprises one or more wings 22,23 and a central body 21, wherein the one or more wings are disposed adjacent to the central body (Fig. 1) (Column 3, Lines 2-10).

With regard to claim 16, George discloses that the wings are in a generally vertical arrangement (Fig. 1).

With regard to claim 18, George discloses an actuator 61 disposed adjacent to the central body, wherein a controller sends a signal to the actuator, and wherein the actuator moves the one or more wings (Column 3, Line 50 to Column 4, Line 10; Column 4, Lines 36-43).

With regard to claim 19, George discloses that the actuator uses a motive force that is hydraulic (Column 3, Lines 52-66).

With regard to claim 20, George discloses that the central body and actuator are made from metal and composites (Column 2, Lines 5-11)

With regard to claim 21, George discloses that the total area of the wings is between about 1 and about 7 square meters (Column 3, Lines 2-9). George discloses that the paravane is approximately 30 feet long, and therefore from the figures the area of the wings would be close to about 7 square meters.

With regard to claim 22, George discloses that the upper and lower wings are constructed composites (Column 1; Column 2, Lines 5-11).

With regard to claim 25, George discloses that the source array comprises one or more adjacent subarrays coupled by a distance rope (Fig. 5) (Column 4, Lines 28-58).

With regard to claim 26, George discloses a second independently steerable deflector coupled to a second source array (Fig. 5) (Column 4, Lines 28-43).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over George as applied to claims 1-2, 5-6, 8-9, 12-16, 18-22, and 26-26 above, and further in view of Renault (5319609).

With regard to claim 7, George does not disclose that the positioning system is a satellite positioning system. George discloses using a laser positioning system, but not a satellite positioning system. Renault teaches that it is known in the art of marine

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seismic surveying to use a GPS satellite positioning system to determine location of marine seismic survey equipment (Column 3, Line 65 to Column 4, Line 11). It would have been obvious to modify George to include a GPS satellite positioning system as taught by Regnault instead of the laser positioning system in order to obtain three dimensional coordinates of the source array using the GPS satellite network.

Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over George as applied to claims 1-2, 5-6, 8-9, 12-16, 18-22, and 26-26 above.

With regard to claim 23, George does not disclose that the wings are constructed of a metal skin covering a foam core. George discloses the use of a shell covering a foam core, but does not disclose the material that the shell is made of (Column 2, lines 5-11). However, George does disclose that it is known in the art of marine seismic surveying to use steel (metal) in the components of the arrays (Column 1). Therefore, it would be obvious to one of ordinary skill in the art to use a steel covering as this is a known material for components of in-water seismic survey equipment.

With regard to claim 24, George does not disclose that the skin is titanium or stainless steel, but does disclose that it is known in the art of marine seismic surveying to use steel in the components of the arrays (Column 1). Therefore, it would be obvious to one of ordinary skill in the art to use a steel covering as this is a known material for components of in-water seismic survey equipment.

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Claims 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over George as applied to claims 1-2, 5-6, 8-9, 12-16, 18-22, and 26-26 above, and further in view of Dolengowski (4890568).

With regard to claim 27, George does not disclose an acoustical transducer and receiver coupled to the source array, and a controller, wherein the controller adjusts the deflector device to steer clear of an obstruction located by the acoustical transducer and receiver. Dolengowski teaches that acoustical transducers and receivers can be used with marine seismic arrays in order to locate and navigate around obstructions and obstacles and to avoid entanglement of the equipment in the array (Column 2, Line 60 to Column 3, Line 42). It would have been obvious to modify George to include an acoustical transducer and receiver that feed information to the controller as taught by Dolengowski in order to locate and navigate around obstructions and obstacles and to avoid entanglement of the equipment in the array.

With regard to claim 28, Dolengowski teaches that the acoustical transducer and receiver operate in a range typical for sonar devices (Column 2, Line 60 to Column 3, Line 42).

With regard to claim 29, Dolengowski teaches that the obstruction is moored devices, floating devices, lead in cables, umbilicals, or towed equipment (Column 2, Line 60 to Column 3, Line 42).

With regard to claim 30, Dolengowski teaches that the acoustic transducer and receiver are pointed in a given direction (Column 2, Line 60 to Column 3, Line 42).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCOTT A. HUGHES whose telephone number is (571)272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Scott A. Hughes/
Examiner, Art Unit 3663